"Testing the Sight of the
Young Child"
by
Park Lewis

Scene at America's first preschool eye clinic, conducted at Hartley House in New York City by the National Committee for the Prevention of Blindness. Here the sight of children too young to read is tested by a new method, which makes a game of the examination for the child.

Testing the Sight of the Young Child

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IT IS often a matter of great importance to determine the vision of children still too young to respond to any of the ordinary tests. The skilled ophthalmologist can, of course, by methods with which he is quite familiar, ascertain whether the eyes are so constructed that they will function normally and whether defects are present, but in the infant and in the child too young to know either the letters of the alphabet or the names of the symbols that are found on the test cards provided for illiterates there has been no method in accepted use that gives a discriminating knowledge of the degree of sight possessed by each eye.

Recently, under the direction of the National Committee for the Prevention of Blindness, satisfactory tests have been made on children from 3 to 5 years old by means of an original method.

The difficulty of examining the sight of a young child in which cooperative responses are required is great. This is enhanced if the test is made by a physician in the mysterious surroundings of his office. The sensitive little person to be examined has spent his entire life almost wholly in the companionship of women, and the big man who looks him in the eye so penetratingly may have he knows not what sinister designs against him.

The child has perhaps been terrified recently by having a huge finger forced down his throat in a search for adenoids. The presence of a man is bad enough, but the word "doctor" is associated in his immature mind with all the horrors of a personal attack; no matter how kindly may be the approach, memory recalls a similar gentle camouflage under which the whole horrible battery of attack was concealed. So when he is invited pleasantly to "look up at the nice doctor," so far from doing so he seeks the assured protection of his mother or nurse and buries his head in her dress.

Then must follow a campaign of pacification and reassurance. Let there be the least semblance of force, indeed let there be veiled

impatience, and the day is lost. Meanwhile the hour for the appointment of the man of affairs is slipping by and emergency and accident cases are crowding the waiting room.

Happily a solution of this difficulty has been discovered.

A woman is less alarming to the baby, as she forms a part of his usual entourage. In the nursery, in the home or in the preschool class she can break through his defense. She has his confidence. What is done in the nature of investigation must take the form of play. The method must be so simple that there is no tax on the child's intelligence and must be sufficiently accurate to enable the observer to draw reasonably exact conclusions. It has been found that a card on which are printed lines of symbols or letters is confusing. The test object should consist of one single thing.

Infant's Eyes Follow Candle

In the infant 5 or 6 months old the presence or absence of sight can be determined by means of a lighted candle. If it is moved before the eyes they will follow it. If one is covered the other will continue to do so and the process may then be reversed. The fact that the light is perceived is shown by the contraction of the pupil when the flame is uncovered at a distance of 12 or 14 inches from the eye.

In children of 3 or 4 years the task is more difficult. The single object that has been chosen for the test is the letter E commonly employed on the visual charts. These letters are so formed that the square of which it is constructed is five times the width of each part of the letter. At a specified distance the ability to distinguish a letter of a certain size gives the accepted measure of the range of sight and may be so recorded.

The printed chart contains one large letter on the top, with two on the second line and with three, four, five and more on succeeding lines as space permits. Each letter is so placed on the chart that the open side is turned in any one of four directions. It may be up or down, backward or forward.

The test consists in having the child or older person who is examined name the direction toward which the open side turns, smaller letters being used successively, at a stated distance until if in the final row the position of each letter is correctly indicated the eyes being tested separately, normal sight is recorded. If the smallest of the symbols that can be seen is yet not the smallest that should be seen, the record is made in the form of a fraction, the figure above the line signifying the distance at which the test is made and that below the line the smallest letter actually seen. If then the lowest letters are correctly indicated the record would read $\frac{20}{XX}$ or $\frac{20}{20}$ or normal. If only the largest letter, the record would read $\frac{20}{CC}$ or $\frac{20}{200}$; if one that should be seen at fifty feet, $\frac{20}{L}$ or $\frac{20}{50}$, etc., so that in this way a permanent visual record may be maintained.

It was found by Miss Eleanor P. Brown, Mrs. Jessie Ross Royer and their associates making these observations for the committee that simple as these tests would seem to be, they are not so psychologically. The untrained infantile mind has not learned to focus itself on the object seen. It has not learned to discriminate differentially and it has not learned self-expression. Apperception comes rapidly but it requires a degree of preliminary training.

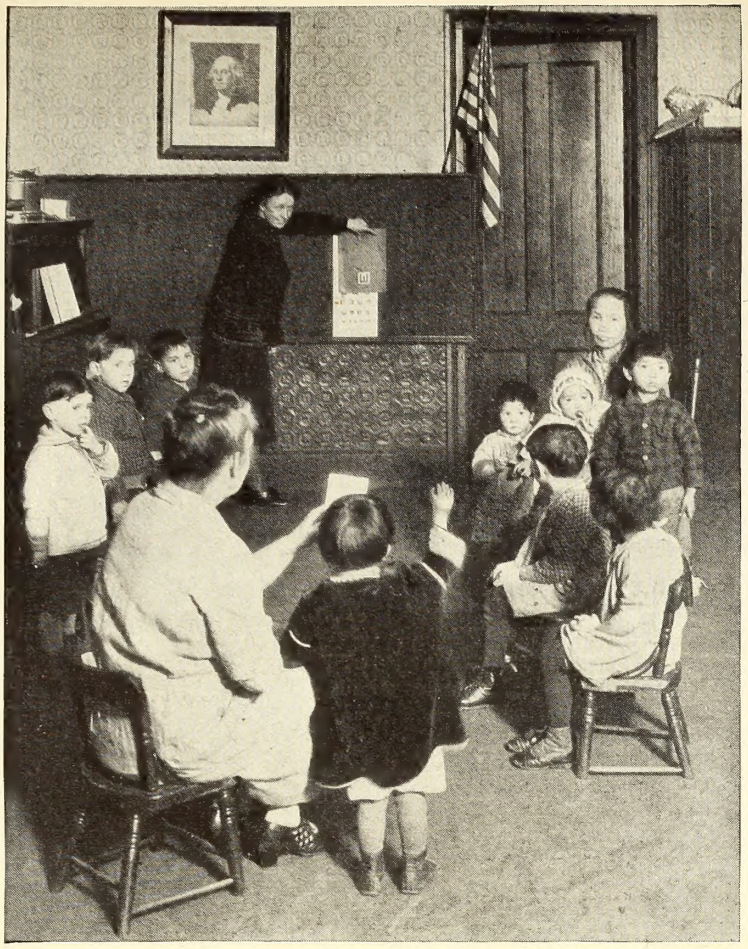
The first requisite is the fixing of attention. The wandering of the mind of the child is evidenced in the uncertainty of the movements of its eyes. They turn momentarily from one object to another without any fixity of purpose. If the physician stands by the little one, the child's eyes after looking for an instant toward the test chart seek inquiringly the eyes of the examiner, and it is evident that the interest centers in him rather than in the distant and unexciting card with its black symbols on it.

Attention must be first aroused by interest. Before interest can be excited confidence must be established and confidence comes from acquaintance and friendliness. A little time is thus well spent if the investigator is a stranger, in gaining the friendship of this little adventurer in a new world.

Making a Game of It

The dull serious work must then be vitalized. It becomes a game. The big "E" is a funny animal with three legs. Now he lies on his back, now he stands on his three legs, now his legs point this way and now that. But how shall this mute, timid little creature play so hard a game? It is too much to expect a mind diverted by outside interests to exclude these and to engage in the complicated mental processes of watching, thinking, discriminating and vocalizing all at once. So these clever women developed a system of signaling, which is much easier and which leads the little observer to forget his self-consciousness. With a great sweep of the arm the direction is indicated in which this amusing animal is turning his legs up or to the right with the right arm, down or to the left with the left.

So with much laughter and glee one eye is covered and smaller symbols are employed until at last the smallest has been correctly seen and the eyes are recorded as normal. Or if, as sometimes happens, one eye is found to have an imperfection of sight and only one half or one tenth of the normal vision is found to be present then this is an urgent case for the intervention of the skilled ophthalmologist. This is doubly true if one eye has a slight



Jennie shows which way the legs of the animal point. The examiner is using the illiterate E chart in testing the vision.

tendency to turn inward when both should appear to be parallel. There is every probability that one or both of the eyes have a common congenital malformation which is the forerunner of squint or strabismus and which, if not corrected by suitable glasses, may result in a permanent lowering of vision.

If the eyeballs are too flat in their contour or if they are sufficiently irregular in shape to cause strain but to give no evidence of it when they are focused, the effort required is increased. In order that there may be easy and single binocular vision (that is, that the two eyes may work easily and comfortably together), the eyes must be directed equally toward an object.

Should one eye turn in while the other is straight, two images are formed in the brain and the child sees double. This is so disagreeable that an effort is made to overcome it by closing the consciousness to the existence of one of them. The child shuts the eye of his mind on one side. In the developing structures the habit of visual control has not yet become absolutely fixed as it will be in adult life. To avoid this discomfort the child learns gradually to ignore the image produced by the squinting eye and thereby to suppress it. In course of time this suppression becomes established and the eye that would not see finally finds that it cannot see. There then exists dulness of sight from nonuse. But after the eyes have once turned and the sight begins to be dulled the difficulty of a complete restoration increases progressively with each added year.

By wearing suitable glasses the eye is mechanically put in position to function normally at a sufficiently early age. The visual centers undergo a retraining and the sight may be gradually restored.

If this early opportunity is neglected, as is sometimes unwisely advised, until the child is 10 or 12 years old, the possibility of a return to normally clear sight in the defective eye is often lost beyond hope of recovery. Therefore, if the sight in such eyes is to be preserved, the necessity of the early recognition of ocular defects and their prompt correction is of primary importance.

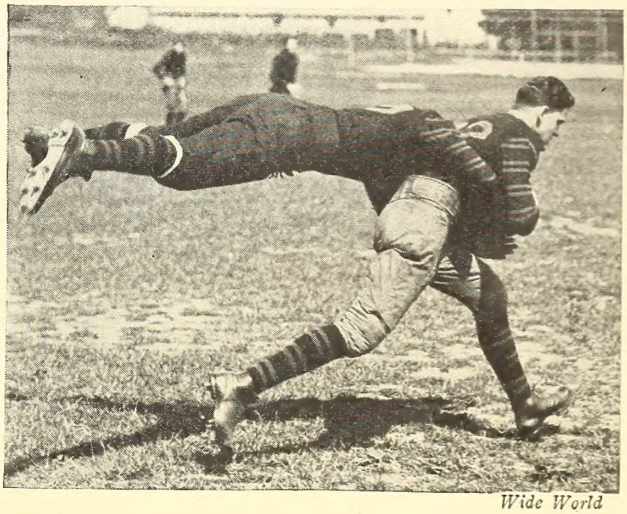
It is not imperative that the amount of visual acuity of the child be ascertained in order that the proper correction may be applied. It is most desirable, however. The difficulties of making such tests in the physician's office have been indicated. Preliminary tests in the home or in the preschool nursery would greatly facilitate the oculist's methods of procedure. His own valuable time would be conserved by having a woman assistant trained in the management of these young patients.

The symbol letters cut from the card and used singly in the hands of a tactful, judicious woman with a knowledge of child psychology would not only enable her to bring to the oculist a fairly exact statement of the visual acuity of each eye of the child but would greatly aid in developing the child's mind by teaching him to govern his activities by the application of his own will, thereby attaining the control that is the object of all educational efforts.

A multitude of variations of the method outlined will readily suggest themselves to the thoughtful student. The figures may be actually those of animals. An elephant would serve admirably. Its thick legs would be equal in visibility to that of the largest test letter, its trunk to one of middle size, its tail to one still smaller and the eye to the least of all. Each of these could be put on movable pivots and would make a game so full of ludicrous possibilities as to engage the attention of the most abstracted child.

Wide World

GRIDIRON HEROES

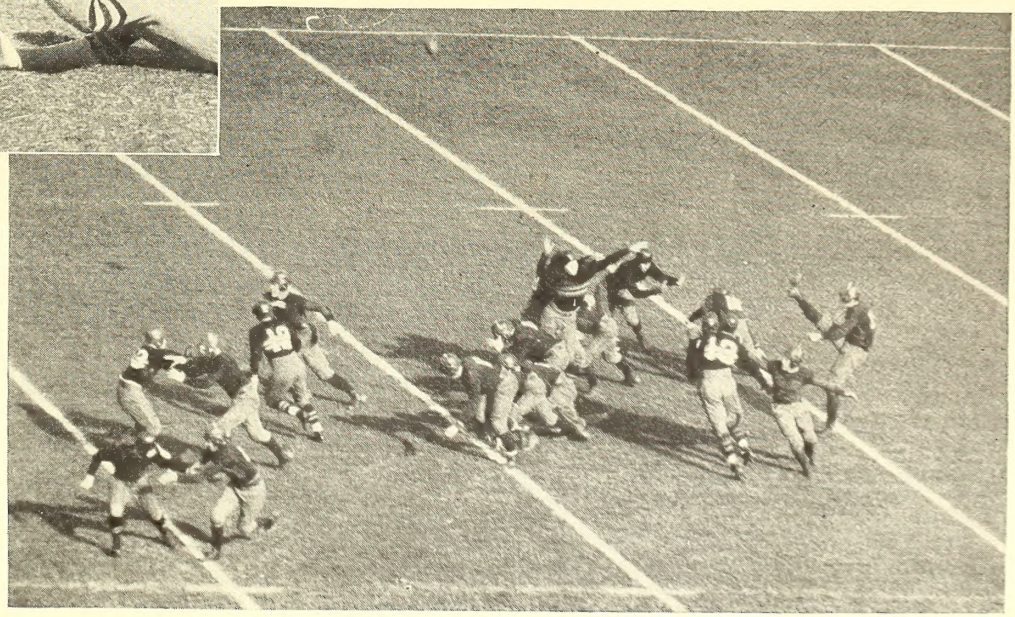


Wide World

H. Armstrong Roberts

Now at TOP *of* FORM

From early workouts, through grueling practice, up to championship games an ever-growing public follows its football heroes. By November the athletes are at the peak of condition both in individual development and in team play.



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